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COTTON INSECT CONDITION FOR WEEK ENDING AUGUST 12, 1950
(Eleventh Cotton Insect Survey Report for 1950)

Boll weevils are continuing to increase rapidly in many areas. Unfortunately many farmers have stopped applying insecticides on fields where the yields of cotton could be greatly increased by continuing the insecticide applications. High weevil infestations and frequent rains are discouraging but it is under such conditions that the largest gains in yield and most profitable returns are frequently obtained by the farmers who continue to fight the weevils even under adverse conditions. There are millions of acres on thousands of farms where the bolls can be protected and the yields increased by the frequent application of insecticides during August.

W. A. Ruffin, Extension Entomologist, Auburn, Alabama, wrote on August 14: "There are indications that many farmers in the northern part of the State will discontinue operations before they should. We are making every effort to keep them dusting in this area until at least the 15th of September, if we can find sufficient insecticides." Mr. Ruffin also stated: "Farmers in southeast Alabama have pretty well completed their cotton dusting program for the year. However, a number of fields in this area will need treatment for the control of the boll weevil for another two weeks." The conditions that prevail in Alabama can be duplicated in six or seven other States where the boll weevil occurs.

Fortunately, for the control of each of the pests of cotton, there are several insecticides that can be depended upon to give good control if applied properly and in sufficient quantities. The insecticide formulations that are most frequently reported as "short" or not available are those containing benzene hexachloride or toxaphene. The available supplies of these insecticides are being shipped as far as possible to areas where need is great and where the farmers and merchants make a real effort to get them. If they cannot be obtained, other satisfactory insecticides are available for each cotton pest.

The cotton leafworm continues to spread as in 1943. It probably now occurs in all cotton-growing counties of Texas, Oklahoma, and New Mexico. Insecticides are being widely used for its control in those States. It is also widespread in Louisiana and Arkansas, and some farmers are using insecticides for its control. The cotton leafworm was reported in Mississippi and Arizona several weeks ago but thus far no heavy infestations have been reported. It has probably reached Missouri and Tennessee and other States but no specimens or reports have been received.

INSECTICIDES AND DEFOLIANTS AND EQUIPMENT FOR APPLYING THEM

South Carolina: The summary statement that accompanied the Cotton Letter issued by the Extension Service, Clemson College, on August 8 reports shortages of a mixture containing 3% gamma benzene hexachloride and 5% DDT in Abbeville, Anderson, Bamberg, Chesterfield, Darlington, Fairfield, Greenwood, Lee, Oconee, Richland, Saluda, and Union Counties; shortages of toxaphene dust and spray mixtures in Abbeville, Anderson, Darlington, Greenwood, Oconee, and Union Counties; shortages of a mixture containing 10% chlordane and 5% DDT in Abbeville, Darlington, Greenwood, Oconee, and Union Counties; shortages of spraying machines in Chester and York Counties; and shortages of hand and mule dusters in Oconee County.

Georgia: Apparently the only section of the State where there was a shortage of insecticides for cotton insect control is in some of the northeastern counties. Reports in general indicate that the insecticide supplies for the State as a whole are now adequate. However, there are thousands of fields where the yields could be increased by the proper application of insecticides for boll weevil control during August.

James A. Turner, Jr., USDA, reported on August 12: "Bollworm seriously abundant on approximately 10,000 acres of cotton in Washington County. Present damage is estimated at 20%. There is a definite shortage of cotton dust containing 10% DDT."

Alabama: Glynn B. Wood and Clifford D. Porterfield reported that in all of the 11 northwestern counties visited during the week ending August 12, insecticide dealers reported that they were able to buy materials needed.

On August 14, W. A. Ruffin, Extension Entomologist, wrote: "At the present time it seems that the supplies of insecticides in central and northern section of the State are getting very short again."

Mississippi: E. W. Dunnam reported on August 11: "Insecticides of one kind or another are yet available for boll weevil and bollworm control, but formulations containing aphidicides are getting scarce. Farmers who have damaging infestations of aphids and do not have 3-5-0 or 3-5-40 are spraying with TEPP. Some liquid GBHC is available and being used for the control of aphids."

Louisiana: C. E. Smith reported on August 11: "The insecticide supply situation has not changed materially since last week. There are still certain poisons available in limited amounts. 3-5-40 appears to be shortest in supply and greatest in demand. Calcium arsenate is available and also is still among the best poisons to use in protecting the top crop of young bolls."

Oklahoma: C. F. Stiles, Extension Entomologist, wrote: "Insecticides are becoming scarce and harder to find each day. Stocks over the entire State are low and as soon as the weather will permit many farmers will begin dusting and spraying. The month of July has been the wettest month on record. I am sure we are going to have heavy leafworm and bollworm damage in addition to very heavy weevil damage!

He reported on August 12: "The insecticide situation remains critical throughout the State and farmers are having to delay poisoning on account of lack of insecticides."

Excerpts from Weekly Cotton Weather Bulletin issued by the Weather Bureau, U. S. Department of Commerce, New Orleans, Louisiana, August 8:

Weather and Cotton Over the Belt: Weather conditions were more favorable for cotton over most of the Belt with cultivation and poisoning for weevils and other insects becoming active except in Oklahoma where soil is still too wet for cultivation. Weevil infestation continues heavy and threatening; dry hot weather is urgently needed over most of the Belt.

Texas: Cotton insects causing increased concern although control measures active.

Oklahoma: Weather favored increase boll weevils, other insect damage, hampered poisoning for 6th consective week; damage very great eastern two-thirds where absence bolls and squares; cotton west fair to good condition but infestation weevil high and spreading.

Arkansas: Frequent rains hindering cultivation and favorable for weevil activity; hot dry weather urgently needed.

Louisiana: Four to six days clear sunny weather very beneficial to cotton crop, permitting cultivation and poisoning and retarding rank growth; weevil infestation continues very heavy with damages upper Delta reported as severe; more active poisoning under favorable conditions should reduce further damage.

Mississippi: More favorable week; more sunshine, less rain, but hot dry weather urgently needed for fruiting, control weevils. Weevil infestation very heavy and critical period for control at hand.

Tennessee: Cotton prospects good except in some southern counties account boll weevil damage.

Alabama: Poisoning continues active.

Georgia: Weather favorable for dusting.

South Carolina: Weather mostly favorable for checking weevils with poisoning effective.

North Carolina: Weather favorable for dusting but weevil infestation still averages 70%.

Arizona: Dusting for bollworm in Santa Cruz and Graham Counties.

New Mexico: Dusting for control leaf spot and insects continuing.

BOLL WEEVIL

North Carolina: Weevil migration is in progress in all areas except in the upper Piedmont and in counties along the northern borders. Infestation continues high in all unpoisoned fields and weevils are now showing up in southern counties in fields where a good control program has been possible. G. D. Jones and J. E. Clement, Raleigh, reported on August 11: "This is the worst boll weevil year on record and the season has favored the pest in most areas."

Weevils were found in all of the 214 fields examined in 24 counties. The average infestation in 120 poisoned fields was 53% punctured squares as compared with 40% last week. The infestation ranged from 1 to 20% in 23 fields; from 21 to 50% in 34 fields; and in 63 fields more than 50% of the squares were punctured. The 94 unpoisoned fields were infested at an average rate of 86% punctured squares as compared with 84% the previous week. In 5 fields the infestation was less than 50% punctured squares. In 12 fields the infestation ranged from 51 to 75% and in 77 fields more than 75% of the squares were punctured.

South Carolina: The Extension Service Cotton Letter issued at Clemson College on August 8 states that the average boll weevil infestation in the poisoned fields examined in 35 counties was 32% punctured squares as compared with 27% last week. All of the unpoisoned fields examined were infested at an average rate of 85% punctured squares as compared with 77% last week. Boll weevil migration has been reported from most counties.

The entomologists at the Pee Dee Experiment Station reported on August 11: "Most of the cotton throughout the State has about completed blooming. There are very few squares in most fields and most of these have been punctured by the boll

weevil. Boll weevils are very abundant in all parts of the State and migration from field to field is widespread."

Alabama: Boll weevil infestations continue high in most areas. The average infestation in 78 fields in 11 northwestern counties was 37% punctured squares. The infestation ranged from 1 to 25% in 17 fields; from 26 to 50% in 46 fields; and from 51 to 75% in 15 fields.

Tennessee: In the examination of 28 fields in Fayette, Hardeman, McNairy, and Shelby Counties the average weevil infestation was 51% punctured squares, the same as it was the previous week. The infestation ranged from 1 to 25% in 4 fields; from 26 to 50% in 9 fields; and more than 50% of the squares were punctured in 15 fields.

Mississippi: Clay Lyle, Entomologist, reported on August 14: "Rains were still hampering cotton insect control in many sections of the State during the past week and severe damage by boll weevils especially is occurring in some localities. Heavy weevil infestations continue on all unpoisoned fields in the hills."

Records indicate that general migration is in progress throughout the lower half of the Delta and heavy local migration is in progress in the upper half. Weevils were found in all fields examined. Most of the low infestations reported were in fields that are being poisoned systematically. The infestation increased 3.4% during the week, whereas over the same period last year it increased 12.5%. The average infestation in 257 fields in 17 Delta Counties was 31% punctured squares as compared with 62% a year ago. The infestation ranged from 1 to 10% punctured squares in 41 fields; from 11 to 25% in 66 fields; from 26 to 50% in 58 fields; and in 92 fields more than 50% of the squares were punctured.

Louisiana: The average infestation in 242 fields in 21 parishes was 44% punctured squares as compared with 27% last week and 23% two weeks ago. The infestation ranged from 1 to 10% in 19 fields; from 11 to 25% in 58 fields; from 26 to 50% in 85 fields; and in 80 fields more than 50% of the squares were punctured.

Arkansas: In the examination of 62 fields in 6 southeastern counties the infestation averaged 42% punctured squares as compared with 30% last week and 19% two weeks ago. No punctured squares were found in 2 fields in Desha and Lincoln Counties. The infestation ranged from 1 to 25% punctured squares in 27 fields; from 26 to 50% in 9 fields; and in 24 fields more than 50% of the squares were punctured. The average infestation in 35 fields in 3 southwestern counties was 45% punctured squares as compared with 48% last week and 42% two weeks ago. The infestation ranged from 1 to 25% in 8 fields; from 26 to 50% in 15 fields; and in 12 fields more than 50% of the squares were punctured. In Poinsett, Cross, Jackson, Monroe, Phillips, and Pulaski Counties, the infestation in 487 fields averaged 11%. No punctured squares were found in 97 fields. The infestation ranged from 1 to 10% in 228 fields; from 11 to 25% in 99 fields; from 26 to 50% in 47 fields; and more than 50% of the squares were punctured in 16 fields.

Texas: The boll weevil continues to cause serious damage to the cotton crop in many fields in the northern and eastern sections of the State. The average infestation in 431 fields in 65 counties was 40% punctured squares as compared with 37% last week. No punctured squares were found in 39 fields. The infestation ranged from 1 to 25% in 144 fields; from 26 to 50% in 89 fields; and in 89 fields more than 50% of the squares were punctured.

Oklahoma: The Oklahoma Crop and Weather Bulletin issued in Oklahoma City on August 8 states: "Boll weevils, bollworms and leafworms continue to increase during the

week. Light to heavy rains occurred in many important cotton counties making this the sixth consecutive week of wet weather further delaying and interrupting the poisoning of cotton fields. Boll weevil damage is very great in the eastern two-thirds of the State where there is an absence of squares and bolls and the condition of the crop is only poor to fair. Dry weather is urgently needed to permit poisoning. Cotton in the western third is in fair to good condition but boll weevil infestation is unusually high in some southwestern counties and leafworms are spreading rapidly in other counties. Bollworms are appearing in damaging numbers in many fields. Some fields were poisoned where weather was favorable. There is a reported scarcity of poison in some counties."

C. F. Stiles, Extension Entomologist, wrote on August 12: "I spent the entire week in the southwestern portion of the State, and in many fields cotton insects are doing enormous damage. I didn't ever expect to see boll weevils as bad in southwest Oklahoma as they are now. The insecticide dealers are getting in limited shipments of all types of cotton insecticides."

The average infestation in 163 fields in 23 counties was 54% punctured squares as compared with 39% last week. The infestation ranged from 1 to 25% in 38 fields; from 26 to 50% in 27 fields; and more than 50% of the squares were punctured in 98 fields.

COTTON LEAFWORM

Oklahoma: C. F. Stiles, Extension Entomologist, reported on August 12: "Leafworms have been reported from four additional counties: Washita, Okmulgee, Muskogee, and LeFlore. The infestation is light in the extreme southeast portion of the State and very heavy in the west and northwest portions of the cotton producing area of the State. Some fields have been entirely stripped and very little cotton, if any, will be produced in these fields."

Texas: Cotton leafworms continue to spread and control measures are needed in many fields in central, northern and western areas.

Arkansas: In addition to the 5 counties reported infested with cotton leafworms in the Ninth Cotton Insect Survey Report, infestations have been reported from Mississippi, Lincoln, and Jefferson Counties, making a total of 8 counties known to be infested.

Louisiana: Cotton leafworms continue to cause damage in Acadia and Evangeline Parishes.

Mississippi: No additional cotton leafworms have been reported since the two light infestations reported in Washington County on July 14 and August 2.

New Mexico: The cotton leafworm continues to be a threat to the cotton crop. Leafworm moths were noted emerging from pupae collected in the Pecos Valley on August 3.

MISCELLANEOUS INSECTS

South Carolina: On July 27 W. J. Moore collected 10 lepidopterous larvae from cotton near Dalzell, Sumter County. Two specimens proved to be the bollworm, Heliothis armigera, and 8 were identified as the tobacco budworm, Heliothis virescens. On the same day C. L. Jernigan collected 7 larvae from cotton in Florence County, 5 of which proved to be the tobacco budworm, Heliothis virescens, and the other 2 specimens could be identified only as Heliothis sp. Also on July 27 R. L. Walker collected 11 lepidopterous larvae on cotton in Florence

County, 3 of which proved to be the tobacco budworm, Heliothis virescens F., and the other 2 specimens were determined as Heliothis sp. and Platynota sp.

On July 31 C. E. Jernigan collected lepidopterous larvae from cotton in Florence County. Seventeen were identified as the tobacco budworm, Heliothis virescens F., 1 as the bollworm, H. armigera, 1 as Heliothis sp., and there was one large hairy salt-marsh caterpillar, Estigmene acrea (Drury).

On August 1, E. E. Hall, Superintendent of the Pee Dee Experiment Station at Florence, collected 138 lepidopterous larvae from cotton. Eighteen of these "worms" were collected in bolls, 50 were taken from cotton blooms, and 70 from cotton squares. All of the 138 specimens proved to be the tobacco budworm, Heliothis virescens.

On August 2, L. C. Fife collected 36 lepidopterous larvae from cotton at Florence. From bolls he collected 1 bollworm, H. armigera Hbn., and 4 specimens of the of the tobacco budworm, H. virescens F.; from cotton blooms he collected 1 bollworm and 7 tobacco budworms; and from cotton squares he obtained 2 bollworms and 21 tobacco budworms. Mr. Fife's collection consisted of 4 bollworms, H. armigera, and 32 specimens of the tobacco budworm, H. virescens.

These six collections made in South Carolina between July 27 and August 2 indicate that the tobacco budworm, H. virescens, is at times much more abundant and more serious as a pest of cotton than the bollworm, H. armigera. In these collections consisting of 213 lepidopterous larvae there are 199 specimens of the tobacco budworm, H. virescens F, that proved to be the bollworm, H. armigera Hbn., and 5 specimens might be either or both species but could be identified only as belonging to the genus Heliothis. The other 2 "worms" were the salt-marsh caterpillar, Estigmene acrea (Drury), and Platynota sp.

Alabama: Lepidopterous larvae were noted in Cullman, Lauderdale, Morgan, and Marion Counties.

Heavy infestations of red spider mites were found in Cullman, Franklin, Lawrence, Walker, and Colbert Counties. The infestation was as high as 18 per square inch in Lawrence County.

Tennessee: Lepidopterous larvae were found in 10 of the 28 fields examined in 4 southwestern counties. Aphids were reported in 5 fields and tarnished plant bugs in 5 fields.

Mississippi: Lepidopterous larvae were reported in 52 of the 257 fields examined in 17 Delta counties, spider mites in 8 fields, and aphids in 8 fields. Of the 52 fields infested by lepidopterous larvae only 4 had infestations above 10% injured squares.

Louisiana: Spider mites are general with injurious infestations reported in St. Landry, Acadia, Evangeline, and Rapides Parishes.

Bollworm infestations continue spotted. Severe infestations were reported in some fields. Much effective poisoning has been done.

Aphids are a problem in many fields due to shortage of 3-5-40.

Texas: Aphids collected on cotton in Dawson County on July 14 by T. P. Patterson were found to represent two species: the cowpea aphid, Aphis medicaginis Koch,

and the cotton aphid, Aphis gossypii Glov. (Determinations by L. M. Russell.)

IRRIGATED COTTON OF THE SOUTHWEST

Arizona: Pentatomids, mainly Euschistus impictiventris adults, continue to migrate into cotton fields in the Salt River Valley in large numbers. The heaviest infestations were found in the Paloverde, Buckeye, Perryville, and Avondale areas. As high as 22 stink bugs per 100 net strokes were found in some fields. Most of the cotton fields in these areas have been dusted or sprayed for insect control. An increase in bollworms was observed in all parts of the Salt River Valley. Infestations are also general in the Santa Cruz and Safford Valleys and control measures are being applied for bollworm control in most all areas. Heavy migrations of stink bugs into cotton fields were reported in the Gila Bend district, and infestations are increasing in the Queen Creek, Mesa, and Litchfield areas. In general, hemipterous insect populations are low in all cotton areas.

New Mexico: L. H. Moore, Extension Entomologist, reported on August 7: "The bollworm and cotton leafworm continue as the biggest threat to the cotton crop. Bollworm damage was evident in all areas. Much dusting is being done for this pest, with excellent control being obtained with 10% DDT plus 70% sulfur. Adult leafworm moths were noted emerging from pupae collected last week in the Pecos Valley by the Experiment Station staff. The first emergence was reported August 3."

Texas: Cotton leafworms are increasing rapidly in some fields in the El Paso area. A few fields have been poisoned for control of this insect and it is expected that a large portion of the cotton acreage will require poison before the end of the season if the leafworm is not held in check by parasites and other natural causes. Bollworm infestation continued generally light in the El Paso area. Predators and parasites have helped to hold this insect under control. Hemipterous insect populations continue low in the El Paso area.

California: Gordon L. Smith, Assistant Entomologist, reported on August 10: "Lygus: Early in the season it appeared that this pest would be extremely numerous. Counts as high as 26 adults per 50 sweeps were not uncommon. As the season progressed it became evident that the usual population build-up was not occurring in cotton, probably due to nymphal mortality from predation. To date little mid-season control has been necessary.

"Bollworm: In spite of low incidence in early sweet corn plantings this pest has been increasing slowly to date. As usual cotton in the southern end of the San Joaquin Valley has been more heavily infested than elsewhere. Here too, predation has reduced larvae populations considerably. Considerable control measures are being taken in the Southern portion of the valley in late July and August.

"Mites: The Atlantic mite made its usual appearance on seedling cotton, necessitating control in some cases. Cool weather conditions prevailed in early June and little rapid or widespread population increase occurred. At the present time very little control is necessary. The two-spotted and pacific mite complex which plagued growers in 1949 is recurring this season. However, the infestations to date have been less severe and less general than in the past season. These pests have necessitated most of the control of pests on cotton so far this season. The greatest difficulties are to formulations and applications of insecticides that are effective against the pests. To date the insecticides have been available."

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